

Table of Contents

Invited Papers

A Kernel P Systems Survey	1
<i>Marian Gheorghe and Florentin Ipate</i>	
Roads to New Grand Challenges of Informatics (Extended Abstract) ...	10
<i>Jozef Gruska</i>	
Computational Complexity of P Systems with Active Membranes	19
<i>Alberto Leporati</i>	
Some Open Problems about Catalytic, Numerical, and Spiking Neural P Systems (Extended Abstract).....	33
<i>Gheorghe Păun</i>	
Active Membranes, Proteins on Membranes, Tissue P Systems: Complexity-Related Issues and Challenges	40
<i>Petr Sosik</i>	
Using the Formal Framework for P Systems	56
<i>Sergey Verlan</i>	

Regular Papers

A P System for Annotation of Romanian Affixes	80
<i>Artiom Alhazov, Svetlana Cojocaru, Alexandru Colesnicov, Ludmila Malahov, and Mircea Petic</i>	
Behavioural Equivalences in Real-Time P Systems	88
<i>Bogdan Aman and Gabriel Ciobanu</i>	
Modelling of Surface Runoff Using 2D P Colonies	101
<i>Luděk Cienciala, Lucie Ciencialová, and Miroslav Langer</i>	
Implementation of P Systems by Using Big Data Technologies	117
<i>Alex Ciobanu and Florentin Ipate</i>	
On Counter Machines versus dP Automata.....	138
<i>Erzsébet Csuhaj-Varjú and György Vaszil</i>	
Model Checking Kernel P Systems	151
<i>Ciprian Dragomir, Florentin Ipate, Savas Konur, Raluca Lefticaru, and Laurentiu Mierla</i>	

Flattening in (Tissue) P Systems	173
<i>Rudolf Freund, Alberto Leporati, Giancarlo Mauri, Antonio E. Porreca, Sergey Verlan, and Claudio Zandron</i>	
Solving SAT by P Systems with Active Membranes in Linear Time in the Number of Variables	189
<i>Zsolt Gazdag</i>	
On Communication Complexity of Some Hard Problems in ECPe Systems	206
<i>Nestine Hope S. Hernandez, Richelle Ann B. Juayong, and Henry N. Adorna</i>	
About One-Sided One-Symbol Insertion-Deletion P Systems	225
<i>Sergiu Ivanov and Sergey Verlan</i>	
Flattening and Simulation of Asynchronous Divisionless P Systems with Active Membranes	238
<i>Alberto Leporati, Luca Manzoni, and Antonio E. Porreca</i>	
Enzymatic Numerical P Systems Using Elementary Arithmetic Operations	249
<i>Alberto Leporati, Giancarlo Mauri, Antonio E. Porreca, and Claudio Zandron</i>	
Communication Rules Controlled by Generated Membrane Boundaries	265
<i>Tamás Mihálydedk, Zoltán Ernő Csajbók, and Péter Takács</i>	
Programming P Systems with Complex Objects	280
<i>Radu Nicolescu, Florentin Ipate, and Huiling Wu</i>	
In Search of a Structure of Fractals by Using Membranes as Hyperedges	301
<i>Adam Obtułowicz</i>	
The Relevance of the Environment on the Efficiency of Tissue P Systems	308
<i>Mario J. Pérez-Jiménez, Agustín Riscos-Núñez, Miquel Rius-Font, and Luis Valencia-Cabrera</i>	
Author Index	323